

## Section I. SCLERAXONIA.

*Pseudaxonia*, v. Koch, *Morph. Jahrb.*, Bd. iv. p. 474.

Fixed, upright, branched polyp-colonies; the short polyp-tubes are surrounded by a canaliferous cœnenchyma, in which numerous spicules are embedded. The axis consists of a cortical substance in which the polyps are placed, and a medullary substance. The latter contains spicules which are different in form from those of the cortex. They are generally tightly packed, sometimes they are fastened together by a horny substance, or even cemented into a strong axis by calcareous material. In this, however, the individual spicules have always served as the basis.

The section Scleraxonia is here regarded as a distinct division of the Gorgonacea, since the component families exhibit a close mutual relationship, and diverge in many respects from those of the Holaxonia. The axis, where such a supporting structure occurs, as in the Holaxonia, is always composed of differentiated spicules, which preserve a certain independence even when the axis appears to the unassisted vision as a hard amorphous mass. The variable consistence of the axis is due to the fact that the spicules may either lie loosely together, or be united by a horny substance, or be bound together into a more or less calcareous mass. The lowest forms of the Scleraxonia, such as occur among the Briareidæ, are closely connected to *Symphodium* and *Callipodium*. There is still to be found a more or less flatly expanded colony, in which the cœnenchyma is divisible into a firmer medullary and a softer cortical portion, but instead of clinging to a substratum, as in the above mentioned forms of Cornulariidæ, the colony rises upright, forming a branched tree-like colony as in *Solenocaulon*, Gray, and *Leucoella*, Gray. With further differentiation the medullary mass comes to lie within a cylindrical stem, and thus forms a central axis, which may be more or less specialised, and attains its highest development in *Corallium*.

The section of the Scleraxonia corresponds in great measure with the family Pseudaxonia of v. Koch,<sup>1</sup> which this author regards as exhibiting a quite different mode of axis-formation from that of his Axifera.

Von Koch's Pseudaxonia includes the Corallinacea, Sclerogorgiacea, and Melithæacea. The Briareacea he refers in part to the Alcyoninæ.

The Scleraxonia include the following families :—

I. Briareidæ.		III. Melitodidæ.
II. Sclerogorgidæ.		IV. Corallidæ.

<sup>1</sup> Skalet d. Alcyonarien, *Morph. Jahrb.*, Bd. iv. p. 474, &c.